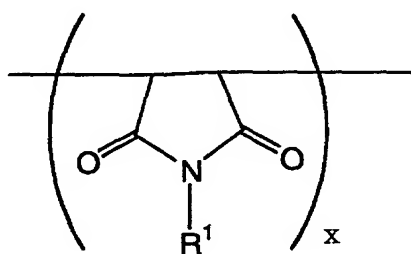


WHAT IS CLAIMED IS:

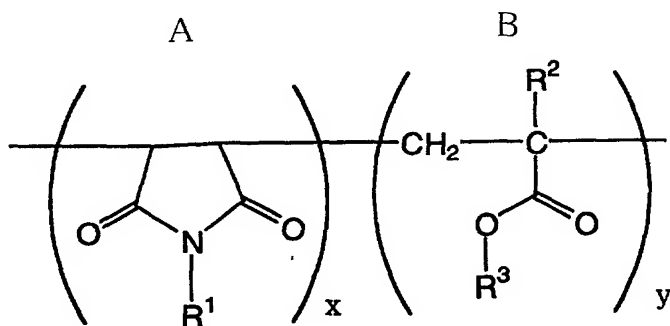
1. A bottom anti-reflective coat forming composition for the lithography process in the preparation of semiconductor device, wherein the bottom anti-reflective coat forming composition comprises resin containing a structural unit comprising maleimide or derivative thereof.
2. The bottom anti-reflective coat forming composition according to claim 1, wherein said resin comprises the structural unit containing maleimide or derivative thereof in the principal chain or the side chain.
3. The bottom anti-reflective coat forming composition according to claim 1, wherein the resin comprises at least the structural unit shown in the Formula (1)



Formula (1)

wherein R^1 is hydrogen, halogen, substituted or unsubstituted C_1 - C_{10} alkyl group or benzene derivative; and x is number 7-10300, and is a polymer with weight-average molecular weight of 700 -1000000.

4. The bottom anti-reflective coat forming composition according to claim 1, wherein the resin comprises the structural unit shown in the Formula (2)



Formula (2)

wherein each R^1 , R^2 and R^3 is independent of one another; R^1 is hydrogen, halogen, substituted or unsubstituted C_1 - C_{10} alkyl group or benzene derivatives; R^2 is hydrogen, halogen or methyl group; R^3 is hydrogen or substituted or unsubstituted C_1 - C_{10} alkyl group; x is number 1-10300; and y is number 0-12100, and is the polymer comprising 10-100 mol% of the maleimide structural unit (A) and 90-0 mol% of the (meth)acrylate structural unit (B), based on the sum of the maleimide structural unit (A) and the (meth)acrylate structural unit (B) in the polymer.

5. The bottom anti-reflective coat forming composition according to claim 4, wherein the maleimide structural unit (A) is 51-95 mol% and the (meth)acrylate structural unit (B) is 49-5 mol% in the structural unit shown in the Formula (2).
6. The bottom anti-reflective coat forming composition according to any one of claims 3 to 5, wherein R^1 is hydrogen, halogen or substituted or unsubstituted C_1 - C_{10} alkyl group in the structural unit shown in the Formula (1) or the Formula (2).
7. The bottom anti-reflective coat forming composition according to any one of claims 1 to 6, wherein said composition further comprises crosslinking agent having at least two crosslinking forming functional groups.
8. The method of forming the bottom anti-reflective coating for the lithography process in the preparation of semiconductor device, comprising applying the bottom anti-reflective coat forming composition according to any one of claims 1 to 7 over the substrate, and then baking.
9. The method of the preparation for semiconductor device, comprising applying the bottom anti-reflective coat forming composition according to any one of claims 1 to 7 over the substrate, forming the bottom anti-reflective coating upon baking, coating photoresist over said bottom anti-reflective coating, exposing said substrate, developing and forming integrated circuit elements after transferring the image over the substrate by etching.

10. The method of the preparation for semiconductor device according to claim 9, wherein exposure is conducted with the light at 193 nm wave-length.

200220" 80787007